Sexual Orientation and Pregnancy Among Adolescent Women in the National Survey of Family Growth, 2002–2015

Margaret M. Paschen-Wolff, DrPH,[1,2] Elizabeth A. Kelvin, PhD,[3,4]
Brooke E. Wells, PhD,[5] and Christian Grov, PhD[2,4]

Abstract

Purpose: Given elevated pregnancy rates, fluctuating sexual identity, and varying sexual experience among adolescent sexual minority women (ASMW; lesbian/bisexual identity, attraction to/sex with females), research should assess adolescent pregnancy by sexual attraction with identity and experience. This study examined associations of three aspects of sexuality—identity, attraction, and experience—with pregnancy among ASMW versus non-ASMW.

Methods: Population-weighted data were drawn from the 2002 to 2015 National Survey of Family Growth (NSFG), 15- to 19-year-old female subsample ($n = 5481$). Multivariable logistic regression models (adjusted for age, race/ethnicity, and survey cycle) compared pregnancy among ASMW versus non-ASMW by sexual identity, attraction, and experience separately, and in a combined model in which interaction of aspects of sexuality and survey cycle was tested. The combined model was then stratified by survey cycle.

Results: Although not significant in the combined model, sexual minority versus heterosexual identity (adjusted odds ratio [aOR] = 1.74, 95% confidence interval [CI] = 1.21–2.51, $p = 0.003$) and sexual minority versus exclusive male attraction (aOR = 1.49, 95% CI = 1.10–2.01, $p = 0.011$) individually predicted higher pregnancy odds. There was significant interaction between attraction and survey cycles. Sexual minority attraction predicted significantly decreased pregnancy odds (aOR = 0.59, 95% CI = 0.38–0.90, $p = 0.014$) in combined 2002 to mid-September 2013 NSFG data, but increased odds (aOR = 1.59, 95% CI = 0.63–4.02, $p = 0.324$) in the rest of 2013–2015.

Conclusion: These results suggest the importance of measuring sexual attraction when examining pregnancy disparities among ASMW. Sex education and teen pregnancy prevention programs should reflect sexual diversity.

Keywords: adolescence, bisexuality, health disparities, pregnancy, sexual orientation

Introduction

BIRTH RATES AMONG U.S. adolescents decreased by 46% from 2007 to 2015.[1] Although some adolescents may welcome the opportunity to have a baby, teen pregnancy is often associated with significant financial and social burdens.[2] Rates of having been or made someone pregnant among sexual minority adolescents in general are estimated at two to seven times greater than those of their non sexual minority counterparts,[3–5] yet few studies have focused on pregnancy among adolescent sexual minority women (ASMW; lesbian/bisexual identity, attraction to or sex with females). Existing analyses have included small sample sizes and few were population based.[6]

Research on ASMW and pregnancy has also been limited by inconsistent or incomplete sexual orientation measures

---

[1]HIV Center for Clinical and Behavioral Studies, Division of Gender, Sexuality, and Health, New York State Psychiatric Institute and Columbia University, New York, New York.

Departments of [2]Community Health and Social Sciences and [3]Epidemiology and Biostatistics, City University of New York (CUNY) Graduate School of Public Health and Health Policy, New York, New York.

[4]CUNY Institute for Implementation Science in Population Health, City University of New York (CUNY) Graduate School of Public Health and Health Policy, New York, New York.

[5]Center for Human Sexuality Studies, Widener University, Chester, Pennsylvania.

that potentially obscure important differences across sexual minority subgroups.[6] Sexual orientation is a complex construct with a range of conceptualizations.[7,8] Three aspects of sexuality—sexual identity, attraction, and experience—are frequently considered to be components of sexual orientation that are related, but potentially independent of each other. According to the 2011–2013 National Survey of Family Growth (NSFG), 12.6% of heterosexually identified female respondents also indicated a history of same-sex partners; over 25% reported attraction to women or uncertain sexual attraction.[9] In studies that have included women who identified as lesbian, up to 63%[10] have indicated a history of sexual contact with men and 10% have reported both male and female partners in the previous year.[11]

Most studies examining pregnancy among ASMW have measured sexual orientation in terms of sexual identity alone,[5,12] sexual experience alone,[4] or a combination of sexual identity and experience.[13–16] Compared to heterosexual identity and having exclusively male partners, both bisexual identity and having sex with male and female partners appear to be associated with increased odds[6,16,17] of adolescent pregnancy, whereas lesbian identity is associated with lower odds.[17]

A dearth of research on pregnancy among ASMW has considered sexual attraction. Sexual attraction is a particularly relevant[18,19] and easily understood measure[18] of sexual orientation for adolescents, whose sexual identity may be in flux[18] or who may not yet have had partnered sexual encounters.[20] In the ASMW pregnancy studies that have referenced sexual attraction, it has been used merely to define sexual identity measures (e.g., "completely homosexual—gay/lesbian, attracted to persons of the same sex"),[6,17,21] possibly overlooking adolescents whose sexual identity label does not convey the range of their sexual attraction.[20,22–24] Given the complexities of sexuality, particularly among adolescents, sexual orientation should be measured in terms of attraction,[19,23] in addition to identity and experience to accurately understand sexual minority-related health disparities[25,26] such as teen pregnancy.

Mechanisms of pregnancy disparities among ASMW in the context of political and social change

Compared to non-ASMW, ASMW report more risk behaviors associated with adolescent pregnancy,[3,5,16,21,25] possibly as functions of sexual minority stress.[27] Risk behaviors include first sexual experience at age 14 or younger,[3,5,21] having multiple sexual partners,[16] having sex while intoxicated,[3,5,16,25,28] and having sex without a barrier method.[5,16,25,28] Higher rates of risk behaviors likely mediate the association between sexual minority status and higher pregnancy rates; the null association observed in previous studies that adjusted for sexual risk behaviors and substance use may be attributed to such mediation.[13,15]

A policy climate more supportive of sexual minorities may alleviate sexual minority stress and risk behaviors as coping responses.[29,30] The turn of the 21st Century brought growing social acceptance of sexual minorities[31,32] and a host of policy advances. From 2000 to 2009, the proportion of Americans viewing same-sex relationships as morally acceptable rose by 23%,[32] and the proportion of U.S. adults condoning same-sex sexual behavior rose from 11% in 1973 to nearly 50% in 2014.[31] Policy advances included a near doubling of

the number of states legally prohibiting sexual minority discrimination (12 in 2000; 21 states plus Washington, D.C. in 2013),[33] and the passage of the 2009 Matthew Shepard and James Byrd, Jr. Hate Crimes Prevention Act.[32] Although 2013 was seen as a turning point for sexual minority equality due to the Supreme Court's ruling against the Defense of Marriage Act[33,34] (which preceded the 2015 ruling in favor of federal marriage equality[35]), several states continue to lack nondiscrimination and antibullying legal protections for sexual minorities.[33]

This study

To examine whether sexual attraction is also an important predictor of sexual minority adolescent pregnancy, and to examine how a fluctuating political and social climate might impact ASMW pregnancy outcomes,[29,30] we drew from three cycles of the NSFG—2002, 2006–2010, and 2011–2015—to (1) assess the association of pregnancy with sexual orientation in terms of three aspects of sexuality (sexual identity, experience, and attraction) among adolescent women and (2) explore whether these associations differed across survey cycles.

Methods

Study design and procedures

The NSFG is a national survey weighted to be representative of the U.S. population 15–44 years of age, which began collecting sexual orientation data in its 2002 sample.[36] Detailed descriptions of survey methodology are available elsewhere.[36] Confidential participation was voluntary and participants gave written informed consent (those 15–17 years of age gave written assent following parental consent).[37] A total of 5481 female NSFG respondents 15–19 years of age were included in this analysis (1150 out of 7643 female respondents in the 2002 cycle; 2284 out of 12,279 female respondents in the 2006–2010 cycle; and 2047 out of 8143 female respondents in the 2011–2015 cycle). The NSFG received institutional review board (IRB) approval from the National Center for Health Statistics within the Centers for Disease Control and Prevention. IRB exemption was obtained from the primary author's institutions (The New York State Psychiatric Institute and the City University of New York [CUNY]) for this study, which involved a secondary data analysis of publicly available data.

Measures

The primary independent variables were three aspects of sexual orientation: sexual identity, attraction, and experience. Sexual identity consisted of three categories: heterosexual or straight (reference); homosexual, gay, or lesbian; or bisexual. Although 92 adolescents reported an identity of "something else" in earlier survey cycles (2002: $n = 80$ and 2006–2010: $n = 12$), this category was not available as a response option in the 2011–2015 survey cycle and thus was excluded from this analysis. Only eight lesbian-identified adolescent women reported having ever been pregnant; thus, for multivariable analyses, sexual identity was collapsed into a dichotomous variable: heterosexual versus sexual minority identity (homosexual, gay, lesbian, or bisexual).

Sexual attraction comprised six categories in the NSFG: only attracted to males (reference); only attracted to females;

mostly attracted to females; equally attracted to males and females; mostly attracted to males; or not sure. For the purposes of this analysis, responses were collapsed into a four-category variable: only attracted to males (reference); only attracted to females; attracted to both males and females; or not sure. Only three adolescent women who reported exclusive attraction to females also reported having ever been pregnant; therefore, responses were further collapsed into a dichotomous variable for multivariable analyses: attracted only to males versus sexual minority attraction (mostly attracted to males, equally attracted to males and females, and mostly or only attracted to females). Those who responded, ''not sure'' ($n=68$) were excluded from multivariable analyses since we could not determine whether they were unsure of their sexual attraction or unsure of how to respond to the question.

Lifetime sexual experience (i.e., oral, vaginal, or anal sex) included sex with only male partners (reference); only female partners; both male and female partners; and no sexual contact. As adolescent women who had never had sexual contact or who had only had female partners would not have had the opportunity to get pregnant (assuming that adolescents would not have sought other means of becoming pregnant), they were excluded from multivariable analyses. For multivariable analyses, sexual experience was thus treated as a dichotomous variable: only lifetime male partners versus sexual minority experience (both male and female lifetime sexual partners).

Sexual risk behaviors included whether participants had ever had penile–vaginal intercourse; the number of male partners with whom the participant had ever had penile–vaginal intercourse (one, two, or three or more partners); any past-year transactional sex with male partners (exchanged money or drugs with a male for sex); any past-year condomless penile-vaginal intercourse with a male partner; and whether the participant had their first voluntary penile-vaginal intercourse at age 14 or younger.

Recreational drug use was assessed in terms of frequency of past-year use of five separate drugs: marijuana, cocaine, crack, crystal methamphetamine, and nonprescription injection drug use. Response options ranged from ''never'' to ''about once a day.'' We measured past-year drug use as having used any of these substances at least once in the past 12 months. Crystal methamphetamine use was not assessed in the 2002 sample, but was included in this analysis given that all but five respondents in later samples had used it in conjunction with other recreational drugs.

Alcohol use was assessed in terms of frequency of use within the past 12 months, with response options ranging from ''never'' to ''about once a day.'' We collapsed responses into a dichotomous variable, indicating whether the participant reported any alcohol use over the past year (all responses greater than ''never'').

The primary outcome was whether respondents had ever been pregnant (≥ 1 pregnancy = yes and 0 pregnancies = no). Because the NSFG only asked about pregnancy intendedness for each unique pregnancy, whereas this analysis focused on having ever been pregnant, we created a variable indicating whether participants had ever had an intended pregnancy ($n=134$). Since we did not observe significant differences between ASMW and non-ASMW, pregnancy intendedness was not included in multivariable analyses.

Additional covariates included survey cycle (2002, 2006–2010, and 2011–2015); self-reported age in years; and self-reported race/ethnicity (Hispanic, any race; Black/African American, non-Hispanic; White, non-Hispanic; and any other race, non-Hispanic).

Data analyses

Analyses were conducted on the merged 2002, 2006–2010, and 2011–2015 NSFG datasets, limited to the 5481 female respondents 15–19 years of age at the time of their interview. Weights were adjusted by dividing the original weight variable by three to account for the three survey cycles.[38] We first describe the sample overall (including demographic characteristics, sexual orientation, and pregnancy and related behaviors), and then stratified on survey cycle using the Rao-Scott chi-square (Table 1). We also compared pregnancy-related behaviors (i.e., sexual risk and substance use) by sexual orientation identity, attraction, and experience (Table 2). Next, separate unadjusted logistic regression models explored the association of having ever been pregnant by each of the three aspects of sexual orientation (Table 3).

Subsequently, separate multivariable logistic regression models explored the association of pregnancy by each aspect of sexual orientation (Model 1: odds of pregnancy by sexual identity; Model 2: by sexual attraction; and Model 3: by lifetime sexual experience). We then ran an additional model (Model 4) that simultaneously included all three measures of sexual orientation to look at their independent associations with pregnancy (Table 4). We examined correlations between each sexual orientation measure to ensure that all could be included in the same model. Aspects of sexuality were moderately correlated with Cramer's V coefficients ranging from 0.56 to 0.64.[39] All four models adjusted for age, race/ethnicity, and survey cycle.

Next, we assessed whether the association between sexual orientation and adolescent pregnancy differed across NSFG survey cycles by adding interaction terms for each sexual orientation measure by survey cycle to Model 4. Because 2013 was identified as a pivotal year for sexual minority equality,[33,34] we also assessed whether sexual orientation and pregnancy associations differed between the combined 2002 to mid-September 2013 (labeled ''old cycle'') and the latest release of NSFG data, late September 2013 to 2015 (labeled ''new cycle''), in a separate run of Model 4 with the addition of interaction terms for sexual orientation by old and new survey cycles. Where we observed significant interaction, we stratified Model 4 by survey cycles to examine the direction of effect modification (Table 5). We describe trends in pregnancy among ASMW versus non-ASMW across survey cycles, focusing on significant interactions of sexual orientation and survey cycle.[40]

Finally, to be consistent with research showing that substance use and sexual risk behaviors seemed to explain the relationship between sexual minority status and increased odds of teen pregnancy, we ran the stratified Model 4 with the addition of substance use (Model 5: any past-year drug use and any past-year alcohol use), followed by sexual risk behaviors (Model 6: number of lifetime male partners with whom the respondent had penile-vaginal intercourse, past year condomless sex, and first penile-vaginal intercourse at

TABLE 1. DEMOGRAPHIC CHARACTERISTICS, SEXUAL ORIENTATION, AND PREGNANCY
AND RELATED BEHAVIORS BY UNITED STATES NATIONAL SURVEY
OF FAMILY GROWTH SURVEY CYCLES 2002–2015, FEMALES 15–19 YEARS OF AGE (N=5481)

	Unweighted n[a] (weighted %)	2002 (n=1150), Unweighted n[a] (weighted %)	2006–2010 (n=2284), Unweighted n[a] (weighted %)	2011–2015 (n=2047), Unweighted n[a] (weighted %)	χ^2/F	p[b]
Demographic characteristics						
Mean age (SE)	17.08 (0.02)	17.04 (0.04)	17.10 (0.04)	17.08 (0.04)	0.38	0.538
Race and ethnicity						
Hispanic (any race)	1397 (19.53)	231 (15.46)	531 (18.17)	635 (22.78)	7.93	**0.019**
Black, non-Hispanic	1122 (15.97)	242 (15.24)	456 (16.14)	424 (16.29)	0.31	0.855
Other race, non-Hispanic	331 (6.39)	64 (5.69)	139 (6.45)	128 (8.43)	6.77	0.849
White, non-Hispanic	2631 (58.11)	613 (63.61)	1158 (59.25)	860 (54.14)	11.86	**0.003**
Sexual identity						
Heterosexual	4776 (90.18)	952 (91.75)	2057 (91.47)	1767 (88.53)	6.95	**0.031**
Gay/lesbian	95 (1.53)	12 (1.05)	39 (1.53)	44 (1.79)	2.14	0.343
Bisexual	439 (8.29)	65 (7.20)	160 (7.00)	214 (9.69)	5.62	0.060
Sexual attraction						
Only to males	4361 (80.56)	958 (84.03)	1851 (82.48)	1552 (77.28)	18.21	**<0.001**
Only to females	50 (0.83)	4 (0.29)	23 (1.05)	23 (1.02)	4.75	0.093
To both	978 (17.10)	169 (14.67)	377 (15.54)	432 (19.52)	10.63	**0.005**
Not sure	68 (1.51)	14 (1.01)	24 (0.93)	30 (2.18)	5.18	0.075
Sexual experience (Lifetime)						
Only males	2578 (46.85)	612 (52.59)	1067 (44.19)	899 (45.10)	11.25	**0.004**
Only females	97 (1.76)	17 (1.24)	42 (1.89)	38 (2.00)	1.60	0.449
Both	580 (9.70)	107 (9.34)	242 (9.74)	231 (9.90)	0.19	0.909
No sex partners	2192 (41.67)	413 (36.84)	918 (44.18)	861 (43.01)	8.20	**0.017**
Pregnancy and related behaviors						
Ever been pregnant	679 (10.36)	180 (14.38)	300 (11.24)	199 (7.25)	27.38	**<0.001**
Ever had intercourse[c]	2523 (44.15)	553 (46.76)	1068 (43.25)	902 (43.17)	2.31	0.314
Sexual risk with males (of those who have had intercourse[c])						
1 Partner	896 (42.00)	204 (42.91)	357 (38.69)	335 (43.45)	3.25	0.197
2 Partners	412 (16.62)	85 (15.36)	181 (17.57)	146 (16.83)	0.07	0.964
3 or more partners	921 (41.39)	195 (41.74)	412 (43.74)	314 (39.71)	1.64	0.440
Past-year transactional sex[d]	52 (2.02)	20 (3.24)	18 (1.57)	14 (1.49)	4.05	0.132
Past-year condomless sex[c]	1457 (60.98)	349 (66.17)	610 (59.29)	498 (58.83)	5.03	0.081
First intercourse ≤age 14[c]	240 (10.13)	58 (12.05)	115 (11.12)	67 (7.11)	8.00	**0.018**
Past-year substance use						
Any drug use	1427 (25.68)	330 (29.17)	590 (24.38)	507 (24.42)	6.48	**0.039**
Any alcohol use	3270 (59.84)	771 (66.79)	1403 (59.69)	1096 (55.79)	17.50	**<0.001**

[a]Unweighted n may not add up to 100% of the total N due to missing data.
[b]Results based on Rao-Scott modified chi-square tests. Bold indicates $p < 0.05$.
[c]"Intercourse" and "sex" defined as penile–vaginal intercourse with male partner(s).
[d]Exchanged money or drugs with a male for sex.
SE, standard error.

age 14 or younger [transactional sex was excluded due to small sample sizes in stratified models]; Table 6).

All analyses accounted for the complex sampling method and were weighted to the population. Analyses were performed in SAS 9.3 (SAS Institute Inc., Cary, NC) using the proc survey functions. Statistical significance was set at an alpha of 0.05 for regression models and an alpha of 0.10 for interaction terms.[41]

Results

The mean age of the target population was 17.08 years (standard error [SE] = 0.02). Most of the sample (58.11%) identified as White, non-Hispanic. Overall, 4776 adolescent females identified as "heterosexual or straight" (90.18%), 95 (1.53%) as "homosexual, gay, or lesbian," and 439 (8.29%) as "bisexual." Nearly 18% reported any attraction to females (0.83% only attracted to females and 17.10% attracted to both males and females); over 11% had ever had a sexual experience with another female (1.76% exclusively female partners and 9.70% both male and female partners). Of the heterosexually identified respondents, 10.18% reported any attraction to females; 5.87% reported having ever had any sexual experience with a female partner (data not shown). Heterosexual identity decreased significantly from 2002 to 2015 (2002: 91.75%; 2006–2010: 91.47%; and 2011–2015: 88.53%, $p = 0.031$), as did exclusive attraction to males (2002: 84.03%; 2006–2010: 82.48%; and 2011–2015: 77.28%, $p < 0.001$) and rates of sexual experience with exclusively male partners (2002: 52.59%; 2006–

TABLE 2. PREGNANCY-RELATED BEHAVIORS BY SEXUAL IDENTITY, ATTRACTION, AND EXPERIENCE,
UNITED STATES NATIONAL SURVEY OF FAMILY GROWTH SURVEY CYCLES 2002–2015, FEMALES 15–19 YEARS OF AGE (N=5481)

Pregnancy-related behaviors by sexual identity[a]

	Total out of full sample N	Heterosexual (n=4776)	Gay/Lesbian (n=95)	Bisexual (n=439)	χ²	p[b]
	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)		
Ever had intercourse[c]	2523 (44.15)	2144 (43.07)	39 (34.28)	277 (62.35)	32.47	**<0.001**
Sexual risk with males (of those who have had intercourse[c])						
≥3 Lifetime sex[c] partners	921 (41.39)	754 (39.00)	13 (45.18)	134 (61.65)	35.47	**<0.001**
Past-year transactional sex[d]	52 (2.02)	30 (1.25)	4 (6.30)	13 (6.29)	7.53	**0.023**
Past-year condomless sex[c]	1457 (60.98)	1244 (61.69)	10 (11.62)	161 (61.05)	20.85	**<0.001**
First intercourse ≤age 14[c]	240 (10.13)	208 (9.26)	6 (25.40)	24 (12.39)	2.32	0.314
Past-year substance use						
Any drug use[e]	1427 (25.68)	1133 (23.12)	38 (45.90)	214 (48.13)	45.57	**<0.001**
Any alcohol use	3270 (59.84)	2798 (58.36)	65 (75.61)	330 (75.59)	35.53	**<0.001**

Pregnancy-related behaviors by sexual attraction[a]

	Total out of full sample N	Only to males (n=4361)	Only to females (n=50)	To both (n=978)	Not sure (n=68)	χ²	p[b]
	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)		
Ever had intercourse[c]	2523 (44.15)	2483 (58.94)	34 (77.43)	374 (38.53)	51 (69.81)	57.91	**<0.001**
Sexual risk with males (of those who have had intercourse[c])							
≥3 Lifetime sex[c] partners	921 (41.39)	637 (37.31)	2 (14.84)	276 (55.43)	5 (73.51)	21.41	**<0.001**
Past-year transactional sex[d]	52 (2.02)	30 (1.50)	0 (0.00)	19 (3.70)	1 (1.61)	2.72	0.099
Past-year condomless sex[c]	1457 (60.98)	1073 (61.13)	2 (8.01)	371 (61.98)	11 (77.35)	10.25	**0.017**
First intercourse ≤age 14[c]	240 (10.13)	175 (8.53)	3 (50.30)	61 (12.75)	1 (0.37)	6.70	0.082
Past-year substance use							
Any drug use[e]	1427 (25.68)	926 (20.75)	21 (50.16)	460 (47.15)	18 (33.58)	71.32	**<0.001**
Any alcohol use	3270 (59.84)	2462 (56.29)	33 (70.74)	741 (77.36)	32 (50.35)	62.80	**<0.001**

Pregnancy-related behaviors by sexual experience[a]

	Total out of full sample N	Only males (n=2578)	Only females (n=97)	Both (n=580)	No sex partners (n=2192)	χ²	p[b]
	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)	Unweighted n (weighted %)		
Ever had intercourse[c]	2523 (44.15)	2002 (76.48)	0 (0.00)	509 (86.84)	0 (0.00)	0.97	0.325
Sexual risk with males (of those who have had intercourse[c])							
≥3 Lifetime sex[c] partners	921 (41.39)	660 (36.97)	N/A	259 (62.73)	N/A	13.76	**<0.001**
Past-year transactional sex[d]	52 (2.02)	27 (1.23)	N/A	24 (5.75)	N/A	6.83	**0.009**
Past-year condomless sex[c]	1457 (60.98)	1117 (61.35)	N/A	340 (59.69)	N/A	0.21	0.647
First intercourse ≤age 14[c]	240 (10.13)	186 (8.60)	N/A	54 (14.92)	N/A	4.71	**0.030**
Past-year substance use							
Any drug use[e]	1427 (25.68)	842 (33.26)	32 (30.73)	356 (60.89)	191 (8.83)	350.51	**<0.001**
Any alcohol use	3270 (59.84)	1867 (74.43)	69 (75.92)	499 (86.61)	826 (36.68)	462.43	**<0.001**

[a]Unweighted n may not add up to 100% of the total due to missing data.
[b]Results based on Rao-Scott modified chi-square tests. Bold indicates $p < 0.05$.
[c]"Intercourse" and "sex" defined as penile–vaginal intercourse with male partner(s).
[d]Exchanged money or drugs with a male for sex.
[e]Includes any past-year use of marijuana, cocaine, crack, crystal methamphetamine, and/or nonprescription injection drug use.
N/A, not applicable.

TABLE 3. UNADJUSTED ODDS OF PREGNANCY BY SEXUAL IDENTITY, ATTRACTION, AND EXPERIENCE, UNITED STATES NATIONAL SURVEY OF FAMILY GROWTH SURVEY CYCLES 2002–2015, FEMALES 15–19 YEARS OF AGE (N = 5481)

Sexual orientation	Total Unweighted n[a] (weighted % out of full sample N)	Ever been pregnant (n = 679) Unweighted n[a] (weighted % out of sexuality aspects)	OR (95% CI)	p[b]	Ever had an intended pregnancy (n = 134) Unweighted n[a] (weighted % out of ever pregnant)	OR (95% CI)	p[b]
Sexual identity							
Heterosexual	4776 (90.18)	565 (9.71)	1.00		110 (18.06)	1.00	
Gay/lesbian	95 (1.53)	8 (3.28)	0.32 (0.14–0.71)	**0.005**	1 (13.91)	0.73 (0.08–6.27)	0.776
Bisexual	439 (8.29)	79 (16.73)	1.87 (1.30–2.68)	**0.001**	13 (26.88)	1.67 (0.67–4.14)	0.269
Sexual attraction							
Only to males	4361 (80.56)	513 (9.73)	1.00		103 (18.36)	1.00	
Only to females	50 (0.83)	3 (4.54)	0.44 (0.12–1.68)	0.229	0 (0.00)	N/A	
To both	978 (17.10)	152 (14.22)	1.54 (1.16–2.04)	**0.003**	28 (25.51)	1.49 (0.75–2.96)	0.250
Not sure	68 (1.51)	6 (2.70)	0.26 (0.09–0.70)	**0.008**	1 (1.76)	N/A	
Sexual experience (Lifetime)							
Only males	2578 (46.85)	522 (17.50)	1.00		102 (18.82)	1.00	
Only females	97 (1.76)	N/A	N/A		N/A		
Both	580 (9.70)	153 (19.01)	1.11 (0.81–1.51)	0.518	31 (24.26)	1.38 (0.67–2.84)	0.378
No sex partners	2192 (41.67)	N/A	N/A		N/A		

[a]Unweighted n may not add up to 100% of the total due to missing data.
[b]Bold indicates p < 0.05.
CI, confidence interval; N/A, not applicable; OR, odds ratio.

2010: 44.19%; and 2011–2015: 45.10%, p = 0.004; Table 1). By contrast, self-reported attraction to both males and females rose significantly from 2002 to 2015 (2002: 14.67%; 2006–2010: 15.54%; and 2011–2015: 19.52%, p = 0.005).

Over a quarter of the overall sample (25.68%) reported past-year drug use and 59.84% reported past-year alcohol use. Of those who had ever had penile–vaginal intercourse, 41.39% reported having had penile–vaginal sex with three or more male partners; 2.02% reported past-year transactional sex; 60.98% past-year condomless sex; and 10.13% had their first penile–vaginal sexual intercourse at age 14 or younger. In total, 10.36% (n = 679) reported having ever been pregnant, with significantly decreasing rates across each survey cycle (2002: 14.38%; 2006–2010: 11.24%; and 2011–2015: 7.25%, p < 0.001; Table 1).

In general, sexual minority status was associated with the highest rates of pregnancy-related behaviors (i.e., sexual risk and substance use), regardless of whether sexual orientation was measured by sexual identity, attraction, or experience (Table 2). A significantly greater proportion of bisexually identified adolescent women (16.73%; odds ratio [OR] = 1.87, 95% confidence interval [CI] = 1.30–2.68, p = 0.001) and a significantly smaller proportion of gay/lesbian-identified adolescent women (3.28%; OR = 0.32, 95% CI = 0.14–0.71, p = 0.005) reported having ever been pregnant compared to heterosexually identified adolescent women (9.71%). The same pattern was observed for those who reported attraction to both males and females (14.22%; OR = 1.54, 95% CI = 1.16–2.04, p = 0.003) compared to those exclusively attracted to males (9.73%). Sex of sexual partners was not significantly associated with pregnancy in unadjusted regression models (Table 3).

After adjustment for age, race/ethnicity, and survey cycle, sexual minority identity (gay/lesbian or bisexual identity vs. heterosexual identity; adjusted odds ratio [aOR] = 1.74, 95% CI = 1.21–2.51, p = 0.003) and sexual minority attraction (attraction only to females or to both males and females vs. attraction only to males; aOR = 1.49, 95% CI = 1.10–2.01, p = 0.011) remained individually associated with increased odds of pregnancy (Table 4). In Model 4, which adjusted for sexual identity, attraction, and experience simultaneously, none of the sexual orientation measures remained significantly associated with pregnancy.

We did not observe significant interaction of sexual orientation measures and the three main survey cycles; however, there was significant interaction between sexual attraction and the more recently released late September 2013 to 2015 (new) cycle at alpha <0.10 (p = 0.052).[41] Therefore, we stratified Model 4 by 2002 to mid-September 2013 (old) and new survey cycles (Table 5). In stratified models, we found that sexual minority attraction (only to females or to both males and females) versus exclusive attraction to males was associated with 41% decreased odds of pregnancy (95% CI = 0.38–0.90, p = 0.014) in the 2002 to mid-September 2013 survey cycles, but 1.59 times the odds of pregnancy in the late September 2013 to 2015 cycle (95% CI = 0.63–4.02, p = 0.324).

When past-year drug and alcohol use were added to the stratified Model 4 to create Model 5, followed by the addition of sexual risk behaviors in Model 6, the same trend persisted, but with the strength of the associations attenuated after the addition of sexual risk behaviors. Sexual minority attraction remained protective against pregnancy in the old survey

TABLE 4. ODDS OF PREGNANCY BY SEXUAL IDENTITY, ATTRACTION, AND EXPERIENCE, UNITED STATES NATIONAL SURVEY OF FAMILY GROWTH SURVEY CYCLES 2002–2015, FEMALES 15–19 YEARS OF AGE (N=5481)

	Model 1,[a] aOR (95% CI)	p[b]	Model 2,[c] aOR (95% CI)	p[b]	Model 3,[d] aOR (95% CI)	p[b]	Model 4,[e] aOR (95% CI)	p[b]
Sexual orientation								
Sexual identity								
Heterosexual	1.00						1.00	
Gay/lesbian or bisexual	1.74 (1.21–2.51)	**0.003**					1.25 (0.77–2.04)	0.374
Sexual attraction								
Only to males			1.00				1.00	
Only to females/to both			1.49 (1.10–2.01)	**0.011**			0.78 (0.52–1.18)	0.235
Sexual experience (Lifetime)								
Only males					1.00		1.00	
Both females and males					1.32 (0.97–1.80)	0.081	1.35 (0.92–1.98)	0.130
Demographics and survey cycles								
Age (continuous)	1.76 (1.59–1.95)	**<0.001**	1.76 (1.61–1.94)	**<0.001**	1.46 (1.31–1.62)	**<0.001**	1.44 (1.29–1.60)	**<0.001**
Race and ethnicity								
Hispanic (any race)	2.77 (2.08–3.69)	**<0.001**	2.63 (2.00–3.48)	**<0.001**	3.00 (2.26–3.97)	**<0.001**	3.05 (2.30–4.04)	**<0.001**
Black, non-Hispanic	3.23 (2.39–4.36)	**<0.001**	3.10 (2.32–4.13)	**<0.001**	2.92 (2.18–3.91)	**<0.001**	3.12 (2.30–4.25)	**<0.001**
Other race, non-Hispanic	1.54 (0.89–2.63)	0.120	1.49 (0.85–2.59)	0.161	1.77 (0.90–3.45)	0.097	1.87 (1.02–3.43)	**0.035**
White, non-Hispanic	1.00		1.00		1.00		1.00	
Survey cycle								
2002	1.00		1.00		1.00		1.00	
2006–2010	0.67 (0.49–0.90)	**0.008**	0.67 (0.50–0.89)	**0.006**	0.77 (0.58–1.02)	0.078	0.78 (0.58–1.04)	0.091
2011–2015	0.39 (0.28–0.54)	**<0.001**	0.39 (0.28–0.54)	**<0.001**	0.42 (0.31–0.59)	**<0.001**	0.44 (0.32–0.62)	**<0.001**

Results based on multivariable logistic regression models that accounted for the complex sampling method and were weighted to the population. All models adjusted for age, race and ethnicity, and NSFG survey cycle.

[a]Odds of pregnancy by sexual identity.
[b]Bold indicates p < 0.05.
[c]Odds of pregnancy by sexual attraction.
[d]Odds of pregnancy by sexual experience.
[e]Odds of pregnancy by sexual identity, sexual attraction, and sexual experience.
aOR, adjusted odds ratio; NSFG, National Survey of Family Growth.

TABLE 5. ODDS OF PREGNANCY BY SEXUAL IDENTITY, ATTRACTION, AND EXPERIENCE (MODEL 4) STRATIFIED BY UNITED
STATES NATIONAL SURVEY OF FAMILY GROWTH OLD AND NEW SURVEY CYCLES, FEMALES 15–19 YEARS OF AGE

	2002-mid-September 2013 (old cycle; n = 4471), aOR (95% CI)	p[a]	Late September 2013–2015 (new cycle; n = 1010), aOR (95% CI)	p[a]
Sexual orientation				
Sexual identity				
Heterosexual	1.00		1.00	
Gay/lesbian or bisexual	1.28 (0.72–2.26)	0.402	1.15 (0.45–2.95)	0.774
Sexual attraction				
Only to males	1.00		1.00	
Only to females/to both	0.59 (0.38–0.90)	**0.014**	1.59 (0.63–4.02)	0.324
Sexual experience (Lifetime)				
Only males	1.00		1.00	
Both females and males	1.61 (1.04–2.50)	**0.032**	0.79 (0.37–1.71)	0.555
Demographics				
Age (continuous)	1.45 (1.29–1.63)	**<0.001**	1.38 (1.01–1.88)	**0.044**
Race and ethnicity				
Hispanic (any race)	2.23 (1.99–3.74)	**<0.001**	2.95 (1.61–5.43)	**0.001**
Black, non-Hispanic	2.82 (2.00–4.00)	**<0.001**	3.13 (1.56–6.27)	**0.001**
Other race, non-Hispanic	1.73 (0.92–3.25)	0.092	1.96 (0.43–8.93)	0.381
White, non-Hispanic	1.00		1.00	

Results based on multivariable logistic regression models that accounted for the complex sampling method and were weighted to the population. All models adjusted for age and race and ethnicity.
[a]Bold indicates $p < 0.05$.

cycles (Model 5, old cycle: aOR = 0.67, 95% CI = 0.44–1.02, p = 0.059; Model 6, old cycle: aOR = 0.52, 95% CI = 0.26–1.02, p = 0.056; and attenuated from aOR = 0.59, 95% CI = 0.38–0.90, p = 0.014 in Model 4), but predicted increased odds of pregnancy in the new cycle (Model 5, new cycle: aOR = 1.58, 95% CI = 0.65–3.85, p = 0.314; Model 6, new cycle: aOR = 1.30, 95% CI = 0.37–4.60, p = 0.684; and attenuated from aOR = 1.59, 95% CI = 0.63–4.02, p = 0.324 in Model 4), although none of the associations was significant (Table 6).

Discussion

We found that among adolescent women, sexual minority identity and attraction individually predicted increased odds of pregnancy compared to heterosexual identity and exclusive attraction to males. These associations were driven by bisexually identified and both-sex attracted women given that there were, respectively, only eight gay/lesbian-identified and three exclusively same-sex attracted women in the sexual minority identity and attraction categories, who had ever been pregnant. Our findings on sexual minority identity echo those of others.[6,16,17] Our results showing an association between sexual minority attraction (again, primarily both-sex attraction) and adolescent pregnancy demonstrate that attraction is also an important aspect of understanding ASMW health disparities.[18,19,23] However, after adjustment for sexual identity, attraction, and experience simultaneously, neither sexual minority identity nor attraction remained significant predictors of ASMW pregnancy disparities. Sexual minority experience (i.e., having had both male and female partners) was not significantly associated with increased odds of pregnancy in this sample.

Because of the rapidly evolving political and social climate for sexual minorities in the United States, we also ex-

plored whether the associations were modified by survey cycle. Interestingly, the only aspect of sexual orientation that significantly interacted with survey cycles was sexual attraction. In stratified models, sexual minority attraction (vs. exclusive attraction to males) was associated with significantly *lower* odds of pregnancy in older NSFG survey cycles, but *increased* odds in the most recent cycle, despite a more supportive policy environment that would be expected to mitigate ASMW pregnancy disparities.[29,30]

The pregnancy disparities observed in the most recent NSFG data for adolescent women with attraction to both males and females may be understood in terms of access to social support, minority stress and discrimination, and internalized stigma. In another study that examined pregnancy trends among adolescent sexual minorities, those who had experienced pregnancy had a significantly greater likelihood of also having experienced stigma and discrimination compared to sexual minority adolescents who had not experienced pregnancy.[5] For adolescents attracted to both males and females, who outwardly assume a bisexual or other nonmonosexual (e.g., queer or pansexual) identity, social support may be more accessible in the form of community connections with other bisexual or nonmonosexual identified individuals, which may alleviate stress associated with bisexual stigma[42] (e.g., negative stereotypes of bisexuality as synonymous with promiscuity and discounting bisexuality as a temporary phase rather than a true identity).[43] For adolescent women who are attracted to both males and females, but who do not self-identify as bisexual or another nonmonosexual identity, however, such community support may not be as accessible.

Research has shown that internalized bisexual stigma (i.e., inwardly focusing bisexual stigma and stereotypes)[43] is especially elevated among people who report both same- and different-sex attraction without identifying as bisexual/

TABLE 6. ODDS OF PREGNANCY BY SEXUAL IDENTITY, ATTRACTION, AND EXPERIENCE, ADJUSTED FOR SUBSTANCE USE (MODEL 5) AND SEXUAL RISK BEHAVIORS (MODEL 6), STRATIFIED BY UNITED STATES NATIONAL SURVEY OF FAMILY GROWTH OLD AND NEW SURVEY CYCLES, FEMALES 15–19 YEARS OF AGE

	2002-mid-September 2013 (old cycle; n=4471), Model 5,[a] aOR (95% CI)	p[b]	Late September 2013–2015 (new cycle; n=1010), Model 5,[a] aOR (95% CI)	p[b]	2002-mid-September 2013 (old cycle; n=4471), Model 6,[c] aOR (95% CI)	p[b]	Late September 2013–2015 (new cycle; n=1010), Model 6,[c] aOR (95% CI)	p[b]
Sexual orientation								
Sexual identity								
Heterosexual	1.00		1.00		1.00		1.00	
Gay/lesbian or bisexual	1.21 (0.68–2.13)	0.519	1.16 (0.46–2.93)	0.750	1.72 (0.72–4.11)	0.222	1.92 (0.28–13.35)	0.508
Sexual attraction								
Only to males	1.00		1.00		1.00		1.00	
Only to females/to both	0.67 (0.44–1.02)	0.059	1.58 (0.65–3.85)	0.314	0.52 (0.26–1.02)	0.056	1.30 (0.37–4.60)	0.684
Sexual experience (Lifetime)								
Only males	1.00		1.00		1.00		1.00	
Both females and males	1.72 (1.10–2.69)	**0.017**	0.83 (0.38–1.79)	0.627	0.82 (0.39–1.74)	0.611	0.69 (0.18–2.67)	0.585
Demographics								
Age (continuous)	1.47 (1.30–1.65)	**<0.001**	1.47 (1.09–2.00)	**0.013**	1.17 (0.95–1.43)	0.138	1.60 (1.00–2.55)	**0.049**
Race and ethnicity								
Hispanic (any race)	2.56 (1.89–3.47)	**<0.001**	2.90 (1.57–5.37)	**0.001**	3.48 (2.35–5.16)	**<0.001**	3.01 (1.33–6.79)	**0.008**
Black, non-Hispanic	2.42 (1.71–3.41)	**<0.001**	2.77 (1.36–5.63)	**0.005**	2.47 (1.56–3.92)	**<0.001**	4.49 (1.30–15.45)	**0.018**
Other race, non-Hispanic	1.67 (0.87–3.20)	0.126	1.67 (0.36–7.74)	0.513	1.45 (0.59–3.55)	0.417	1.55 (0.28–8.51)	0.618
White, non-Hispanic	1.00		1.00		1.00		1.00	
Past-year substance use								
Any drug use[d]								
No	1.00		1.00		1.00		1.00	
Yes	0.87 (0.64–1.18)	0.365	1.45 (0.90–2.33)	0.131	0.49 (0.32–0.77)	**0.002**	1.14 (0.51–2.54)	0.750
Any alcohol use								
No	1.00		1.00		1.00		1.00	
Yes	0.51 (0.37–0.70)	**<0.001**	0.40 (0.23–0.68)	**0.001**	0.38 (0.24–0.61)	**<0.001**	0.56 (0.27–1.14)	0.111
Sexual risk with males								
Lifetime male sex partners[e]								
1 partner					1.00		1.00	
2 partners					1.41 (0.81–2.47)	0.222	3.40 (1.10–10.57)	**0.034**
3 or more partners					1.52 (0.95–2.42)	0.079	0.92 (0.30–2.80)	0.885
Past-year condomless sex[e]								
No					1.00		1.00	
Yes					4.46 (2.77–7.16)	**<0.001**	11.62 (3.93–34.38)	**<0.001**
First intercourse ≤age 14[e]								
No					1.00		1.00	
Yes					3.79 (1.98–7.24)	**<0.001**	4.86 (1.41–16.76)	**0.013**

Results based on multivariable logistic regression models that accounted for the complex sampling method and were weighted to the population.
[a]Adjusted for sexual identity, attraction, and experience simultaneously, as well as for age, race and ethnicity, and past-year drug and alcohol use.
[b]Bold indicates $p < 0.05$.
[c]Adjusted for sexual identity, attraction, and experience simultaneously, as well as for age, race and ethnicity, past-year drug and alcohol use, and sexual risk with males.
[d]Includes any past-year use of marijuana, cocaine, crack, crystal methamphetamine, and/or nonprescription injection drug use.
[e]"Intercourse" and "sex" defined as penile–vaginal intercourse with male partner(s).

nonmonosexual,[43] whereas coming out as such seems to attenuate internalized stigma.[44] Although attitudes toward lesbian and gay identity have become more positive in recent years, perceptions of bisexuality remain negative,[45] despite policy advances in support of sexual minorities more broadly. Policies that support same-sex relationships may not address ongoing bisexual stigma and stereotyping.[46–48]

Adolescent women who express attraction to both males and females may engage in more sex with male partners to conceal their attraction to females and to cope with both bisexual stigma and expectations of heteronormativity.[49] Heteronormative sexual health education and services that overlook sexual diversity, however, may lead to both-sex attracted adolescent women discounting their pregnancy risk and lacking knowledge for pregnancy prevention in the context of their sexual relationships with male partners.[49] Thus, the combined impact of sexual minority stress, lack of social support, stigma, and invisibility may explain ongoing pregnancy disparities among ASMW attracted to both males and females.

Limitations

The study findings should be understood in light of their limitations. First, data were self-report, thus vulnerable to social desirability bias. Second, the NSFG presents cross-sectional data in each survey cycle, limiting our ability to assess the timing of risk behaviors as they related to pregnancy outcomes. Third, the NSFG is a nationally representative sample of the U.S. population, with population weights for sample adjustment based on the U.S. census and for nonresponse and probability of selection. Still, the data are not weighted to sexual orientation since there are no existing population-level sexual orientation data. The NSFG also excludes individuals who are unhoused and institutionalized, thus further limiting generalizability.

In addition, although the NSFG is a large national health survey, the subsample of adolescent women—especially those who are sexual minorities—was much smaller, preventing multivariable analyses of group differences in pregnancy. Despite these limitations, this study provides important information about how teen pregnancy varies by aspects of sexuality—including sexual attraction—among adolescent women in the United States, which may be useful for planning teen pregnancy prevention programs.[13]

Conclusion

To explicate the underlying mechanisms driving ASMW pregnancy disparities, future research should measure sexual attraction in addition to sexual identity and experience. More population-based research is also needed to expand on existing studies that have drawn from small samples and qualitative data. Finally, sex education and teen pregnancy prevention programs should reflect sexual diversity through imagery, language, and resources that acknowledge adolescents' ranges of sexual attraction. To address the unique needs of ASMW regardless of their sexual identity, all sexual and reproductive health programs and services would benefit from movement beyond assumptions of heterosexuality among adolescent women and recognition of adolescent sexual fluidity.

References

1. [No authors listed]: QuickStats: Birth rates among teens aged 15–19 years, by race/Hispanic ethnicity*—National Vital Statistics System, United States,(†) 2007 and 2015(§). MMWR Morb Mortal Wkly Rep 2016;65:832.
2. Centers for Disease Control and Prevention. About teen pregnancy. 2016. Available at https://www.cdc.gov/teenpregnancy/about Accessed November 11, 2016.
3. Blake SM, Ledsky R, Lehman T, et al.: Preventing sexual risk behaviors among gay, lesbian, and bisexual adolescents: The benefits of gay-sensitive HIV instruction in schools. Am J Public Health 2001;91:940–946.
4. Forrest R, Saewyc E: Sexual minority teen parents: Demographics of an unexpected population [Abstract]. J Adolesc Health 2004;34:122.
5. Saewyc EM, Poon CS, Homma Y, Skay CL: Stigma management? The links between enacted stigma and teen pregnancy trends among gay, lesbian, and bisexual students in British Columbia. Can J Hum Sex 2008;17:123–139.
6. Charlton BM, Corliss HL, Missmer SA, et al.: Sexual orientation differences in teen pregnancy and hormonal contraceptive use: An examination across 2 generations. Am J Obstet Gynecol 2013;209:204.e1–e8.
7. Drescher J, Byne WM: Homosexuality, gay and lesbian identities, and homosexual behavior. In: *Kaplan & Sadock's Comprehensive Textbook of Psychiatry*. Edited by Sadock BJ, Sadock VA, Ruiz P. 10th ed. Philadelphia, PA: Wolters Kluwer, 2017, pp 1982–2013.
8. American Psychological Association. Definitions related to sexual orientation and gender diversity in APA documents. Available at https://www.apa.org/pi/lgbt/resources/sexuality-definitions.pdf Accessed October 1, 2018.
9. Copen CE, Chandra A, Febo-Vazquez I: Sexual behavior, sexual attraction, and sexual orientation among adults aged 18–44 in the United States: Data from the 2011–2013 National Survey of Family Growth. Natl Health Stat Report 2016;1–14.
10. Charlton BM, Corliss HL, Missmer SA, et al.: Influence of hormonal contraceptive use and health beliefs on sexual orientation disparities in Papanicolaou test use. Am J Public Health 2014;104:319–325.

11. Lindley LL, Barnett CL, Brandt HM, et al.: STDs among sexually active female college students: Does sexual orientation make a difference? Perspect Sex Reprod Health 2008; 40:212–217.

12. Tornello SL, Riskind RG, Patterson CJ: Sexual orientation and sexual and reproductive health among adolescent young women in the United States. J Adolesc Health 2014;54:160–168.

13. Charlton BM, Roberts AL, Rosario M, et al.: Teen pregnancy risk factors among young women of diverse sexual orientations. Pediatrics 2018;141:pii: e20172278.

14. Goodenow C, Szalacha LA, Robin LE, Westheimer K: Dimensions of sexual orientation and HIV-related risk among adolescent females: Evidence from a statewide survey. Am J Public Health 2008;98:1051–1058.

15. Lindley LL, Walsemann KM: Sexual orientation and risk of pregnancy among New York City high-school students. Am J Public Health 2015;105:1379–1386.

16. Riskind RG, Tornello SL, Younger BC, Patterson CJ: Sexual identity, partner gender, and sexual health among adolescent girls in the United States. Am J Public Health 2014;104:1957–1963.

17. Goldberg SK, Reese BM, Halpern CT: Teen pregnancy among sexual minority women: Results from the National Longitudinal Study of Adolescent to Adult Health. J Adolesc Health 2016;59:429–437.

18. Austin SB, Conron K, Patel A, Freedner N: Making sense of sexual orientation measures: Findings from a cognitive processing study with adolescents on health survey questions. J LGBT Health Res 2007;3:55–65.

19. Sexual Minority Assessment Research Team (SMART): Best practices for asking questions about sexual orientation on surveys. Los Angeles, CA: The Williams Institute, 2009. Available at https://williamsinstitute.law.ucla.edu/wp-content/uploads/SMART-FINAL-Nov-2009.pdf Accessed June 1, 2016.

20. Johns MM, Zimmerman M, Bauermeister JA: Sexual attraction, sexual identity, and psychosocial wellbeing in a national sample of young women during emerging adulthood. J Youth Adolesc 2013;42:82–95.

21. Saewyc EM, Bearinger LH, Blum RW, Resnick MD: Sexual intercourse, abuse and pregnancy among adolescent women: Does sexual orientation make a difference? Fam Plann Perspect 1999;31:127–131.

22. Diamond LM: Was it a phase? Young women's relinquishment of lesbian/bisexual identities over a 5-year period. J Pers Soc Psychol 2003;84:352–364.

23. Savin-Williams RC, Ream GL: Prevalence and stability of sexual orientation components during adolescence and young adulthood. Arch Sex Behav 2007;36:385–394.

24. Tolman DL, McClelland SI: Normative sexuality development in adolescence: A decade in review, 2000–2009. J Res Adolesc 2011;21:242–255.

25. Herrick AL, Matthews AK, Garofalo R: Health risk behaviors in an urban sample of young women who have sex with women. J Lesbian Stud 2010;14:80–92.

26. Wolff M, Wells B, Ventura-DiPersia C, et al.: Measuring sexual orientation: A review and critique of US data collection efforts and implications for health policy. J Sex Res 2017;54:507–531.

27. Meyer IH: Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. Psychol Bull 2003;129:674–697.

28. Poteat VP, Russell ST, Dewaele A: Sexual health risk behavior disparities among male and female adolescents using identity and behavior indicators of sexual orientation. Arch Sex Behav 2017. [Epub ahead of print]; DOI: 10.1007/s10508-017-1082-6.

29. Hatzenbuehler ML, McLaughlin KA, Keyes KM, Hasin DS: The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: A prospective study. Am J Public Health 2010;100:452–459.

30. Pachankis JE, Hatzenbuehler ML, Mirandola M, et al.: The geography of sexual orientation: Structural stigma and sexual attraction, behavior, and identity among men who have sex with men across 38 European countries. Arch Sex Behav 2017;46:1491–1502.

31. Twenge JM, Sherman RA, Wells BE: Changes in American adults' reported same-sex sexual experiences and attitudes, 1973–2014. Arch Sex Behav 2016;45:1713–1730.

32. Movement Advancement Project. A decade of progress on LGBT rights. 2010. Available at www.lgbtmap.org/policy-and-issue-analysis/a-decade-of-progress-on-lgbt-rights Accessed June 10, 2016.

33. Movement Advancement Project. The Momentum Report—2014 Edition: An Analysis of Key Indicators of LGBT Equality in the U.S. 2014. Available at www.lgbtmap.org/file/momentum-report-2014.pdf Accessed November 1, 2016.

34. Greenblatt A. How 2013 became the greatest year in gay rights history. 2013. Available at https://www.npr.org/sections/itsallpolitics/2013/12/03/248217871/how-2013-became-the-greatest-year-in-gay-rights-history Accessed November 1, 2016.

35. Chappell B. Supreme court declares same-sex marriage legal in all 50 states. The Two-Way NPR Blog. 2015. Available at www.npr.org/sections/thetwo-way/2015/06/26/417717613/supreme-court-rules-all-states-must-allow-same-sex-marriages Accessed July 11, 2018.

36. Groves RM, Mosher WD, Lepkowski JM, Kirgis NG: Planning and development of the continuous National Survey of Family Growth. Vital Health Stat 1 2009;1–64.

37. Lepkowski JM, Mosher WD, Groves RM, et al.: Responsive design, weighting, and variance estimation in the 2006–2010 National Survey of Family Growth. Vital Health Stat 2 2013;1–52.

38. Centers for Disease Control and Prevention. Combining YRBS data across years and sites. 2014. Available at https://www.cdc.gov/healthyyouth/data/yrbs/pdf/yrbs_combining_data.pdf Accessed December 30, 2016.

39. Hinkle DE, Wiersma W, Jurs SG: Applied Statistics for the Behavioral Sciences, 5th ed. Boston, MA: Houghton Mifflin Co., 2003.

40. Homma Y, Saewyc E, Zumbo BD: Is it getting better? An analytical method to test trends in health disparities, with tobacco use among sexual minority vs. heterosexual youth as an example. Int J Equity Health 2016;15:1–8.

41. Marshall SW: Power for tests of interaction: Effect of raising the Type I error rate. Epidemiol Perspect Innov 2007;4:4.

42. Hatzenbuehler ML: How does sexual minority stigma ''get under the skin''? A psychological mediation framework. Psychol Bull 2009;135:707–730.

43. Dyar C, Feinstein BA, Schick V, Davila J: Minority stress, sexual identity uncertainty, and partner gender decision making among nonmonosexual individuals. Psychol Sex Orientat Gend Divers 2017;4:87–104.

44. Paul R, Smith NG, Mohr JJ, Ross LE: Measuring dimensions of bisexual identity: Initial development of the Bisexual Identity Inventory. Psychol Sex Orientat Gend Divers 2014;1:452–460.

45. Dodge B, Herbenick D, Friedman MR, et al.: Attitudes toward bisexual men and women among a nationally representative probability sample of adults in the United States. PLoS One 2016;11:e0164430.

46. Brewster ME, Moradi B: Perceived experiences of anti-bisexual prejudice: Instrument development and evaluation. J Couns Psychol 2010;57:451–468.

47. Dyar C, Feinstein BA, London B: Dimensions of sexual identity and minority stress among bisexual women: The role of partner gender. Psychol Sex Orientat Gend Divers 2014;1:441–451.

48. Wandrey RL, Mosack KE, Moore EM: Coming out to family and friends as bisexually identified young adult women: A discussion of homophobia, biphobia, and heteronormativity. J Bisex 2015;15:204–229.

49. Travers R, Newton H, Munro L: ''Because it was expected'': Heterosexism as a determinant of pregnancy among sexually diverse youth. Can J Commun Ment Health 2011;30:65–79.

Address correspondence to:
Margaret M. Paschen-Wolff, DrPH
HIV Center for Clinical and Behavioral Studies
Division of Gender, Sexuality, and Health
New York State Psychiatric Institute
and Columbia University
1051 Riverside Drive, Unit 15
New York, NY 10032

E-mail: mmw2161@cumc.columbia.edu